

POLYKEN® 942 & 955 EN

Product Information

Product description: The Polyken® 942/955 EN System is a multilayer coating system designed for the corrosion protection of pipelines operating in highly corrosive environments and exposed to high mechanical stresses that may be present particularly on large diameter pipes. The system consists of 1027 liquid adhesive, 942 three ply anti-corrosion inner layer and 955 EN mechanical outer layer and is fully certified to the DIN 30672 & EN12068 Class C50 and ISO21809-3 type 12-1 standards.

The three ply adhesive system produces a strong cohesive bond to the primed steel surface, at the spiral overlap and to the mechanical outer layer. The tough mechanical properties of the outer layer provide protection to the pipes during handling and installation.

Features:

- Fully amalgamating overlapping areas.
- Worldwide reference lists.
- Impermeable to oxygen and moisture.
- Resistant to soil stress.
- Uniform coating thickness.
- Low cathodic protection-current requirements.
- Compatible with all pipe diameters and generic plant coating systems.

Benefits:

- Forming a sleeve-type coating.
- Proven long-term in-ground performance.
- Superior in-ground performance.
- Plant coating quality in-situ application.
- Saving cost over the life of the pipeline.
- Minimizes inventory, thus saving money.

Product selection guide

Max. operating temperature	65°C
Compatible line coatings	PE, FBE, PP, CTE, Tape,
Recommended pipe preparation	SSA-ST2 (SSPC-SP3) or SSA-SA 2 (SSPC-SP6) 1 – 3 mil anchor profile (25 – 76 micron anchor profile)
Recommended primer	1027
Performance	EN12068 class C50 ISO21809-3 Type 12-1

Product construction

	942-30	955 22 EN	955 28 EN
Tape thickness	30 mils	22 mils	28 mils
Backing color	Black	Black	Black/White

Ordering information

Polyken® 942 and 955 EN Tape Coatings are available in roll form.

Example 942-30 EN 100MMX30M C41

942	Product type	Standard Ordering options
30	Product thickness in mils	30 (0.76 mm)
100	Tape width in mm	50 mm , 100 mm, 150 mm
30	Tape roll length in meter	15 (15 m), 30 (30.5 m), 60 (60.5 m)*
C41	Tape inner core diameter in mm	41 mm, 76 mm*

955-22 EN BLK 100MMX30M C41

955 EN	Product type	Standard Ordering options
22	Product thickness in mils	22 (0.56 mm), 28 (0.71 mm)
BLK	Tape backing color	Black (BLK), White (WHT)
100	Tape width in mm	50 (50.8 mm) , 100 (101.6 mm), 150 (152.4 mm)
30	Tape roll length in meter	15(15.2 m), 30(30.5 m), 61 (61 m)*
C41	Core inside diameter in mm	41 mm , 76 mm*

** Only for 150 mm wide rolls

For other ordering options please contact your Seal For Life representative.

Product properties

Property	Method	Typical values			Units
		942	955 – 22 EN	955-28 EN	
Tensile strength	ASTM D 1000	> 30 > 5.2	> 30 > 5.2	> 30 > 5.2	pli N/mm
Elongation	ASTM D 1000	> 500	> 400	> 400	%

System properties two layers 942-30 and two layers 955 EN

Shear resistance to primed steel & factory coating	ISO 21809-3 EN12068, @ 23°C @ 50°C	0.2 0.07		N/mm ² N/mm ²
Peel adhesion to primed steel & factory coating	ISO 21809-3 EN12068, @ 10 mm/min @ 23°C @ 50°C	1.3 0.2		N/mm N/mm
Peel adhesion to primed steel & factory coating After 28 days hot water immersion	ISO 21809-3, @ 10 mm/min @ 23°C	1.2		N/mm
Peel adhesion to primed steel	ASTM D1000, @ 300 mm/min	6.4		N/mm
Peel adhesion inner to inner	ISO 21809-3 EN12068, @ 100 mm/min @ 23°C @ 50°C	2.7 0.4		N/mm N/mm
Peel adhesion outer to inner	ISO 21809-3 EN12068, @ 100 mm/min @ 23°C @ 50°C	2.4 0.3		N/mm N/mm
Peel adhesion outer to outer	ISO 21809-3 EN12068, @ 100 mm/min @ 23°C @ 50°C	0.7 0.3		N/mm N/mm
Cathodic disbondment	ISO 21809-3 EN12068, @ 23°C @ 50°C	< 5 7		mm radius mm radius
Dielectric strength	ASTM D149	40		kV
Impact resistance	EN12068, class C ISO21809-3	> 15 5.7		J J/mm
Indentation resistance	ISO 21809-3 EN12068, @ 23°C @ 50°C	1.1 1		mm remaining thickness
Electrical insulation resistance	EN12068	10 ¹¹		Ωm ²

Note: The typical values in this data sheet are based on lab prepared samples. Values shown are not to be interpreted as product specifications; All tests are done at 23°C unless specified otherwise.

Equation for Pipe Coating Requirements

$$\text{Squares** of coating required} = \frac{(\text{width of coating in inches}) \times (\text{area of pipe in square feet})^*}{(\text{width of coating in inches} - \text{overlap in inches}) \times 100}$$

* Area of pipe in ft² = (diameter in inches / 12) x 3.1416 x length in feet
 ** One Square = one hundred square feet = 9.29 square meters

$$\text{Square meters of coating required} = \frac{(\text{width of coating in mm}) \times (\text{area of pipe in square meter})^*}{(\text{width of coating in mm} - \text{overlap in mm})}$$

* Area of pipe in m² = (diameter in mm / 1000) x 3.1416 x length in meter

$$\text{Squares** per roll} = \frac{(\text{width of roll in inches}) \times (\text{length of roll in feet})}{(12) (100)}$$

$$\text{Square meters Per roll} = \frac{(\text{width of roll in mm}) \times (\text{length of roll in m})}{(1000)}$$

$$\text{Rolls Required} = \frac{(\text{squares of coating required})}{(\text{squares per roll})}$$

$$\text{Rolls Required} = \frac{(\text{square meters of coating required})}{(\text{square meters per roll})}$$

Application instruction: Job preparation	
Tools, equipment and auxiliaries	Temperature gauge, DFT/WFT gauge Primer application equipment/agitator, Tape application equipment, Coating "hot box"
Additional coating materials	931, 939
High humidity	Polyken® 942/955 can be applied in a humid atmosphere. The substrate should be free from condensing water which can be reached by keeping the temperature at least 5°F (3°C) above dew point.
Work area and substrate	The substrate surface should be dry, clean and protected against negative weather influences.
Product conditions	The Polyken® 942/955 shall be stored and/or transported in a dry, ventilated location. Storage temperature shall be a minimum of 15°C and a maximum of 50°C. The minimum primer and roll body temperature for application will be 15°C.

Application instruction: Surface preparation	
General	The area to be coated has to be clean, dry, and free from oil, grease and dust. All contamination including mill-scale has to be removed.
Degreasing	Degrease surfaces with Toluene or Heptane and e.g. a lint-free cloth.
Preventing condensation of water	Prior to and during the application, the temperature of the substrate(s) must be at least 5°F (3°C) above the dew point.
Substrate temperature	Temperature of the substrate should preferably be between 10°C and 50°C. Preheating may be required.

Application instruction: Brief version	
Step 1	Clean substrate to SSA-ST2, SSPC-SP3 (power wire brush) or SSA-SA 2, SSPC-SP6 (commercial blast). Surface (anchor) profile depth shall be no less than 1.0 mils (25 micron) and no greater than 3 mils (76 micron).
Step 2	Uniform primer application achieving 2 to 3 mil WFT. Primer should be "dry to touch" before application of inner layer.
Step 3	If required, apply weld seam coating (931 or 939)
Step 4	Start application a minimum of 4" beyond cutback edge.

* For further detailed information, please view the corresponding Application Guideline *

Step 4	Spirally apply the 942 inner layer (anti corrosion) with a 1% to 2% neckdown and no less than a 50% overlap
Step 6	Spirally apply the 955 EN outer layer (mechanical Protection) with a 1% to 2% neckdown and no less than a 50% overlap.
Step 7	Perform holiday detection per NACE RP-02-74

Handling and commissioning	
Exposure to loads	Objects coated with Polyken® 942/955 should not be exposed to loads e.g. from supports- or lifting equipment.
Backfill	Backfill is possible immediately after completion of the coating application. Consult application guidelines for specific instructions. Backfill should be clean and not contain any foreign items that can cause damage to the coating system.

Information	
Documentation	Extensive information is available on our website. Application instructions and other documentation can be obtained by contacting our offices, from our local distributor or by sending an email to info@sealforlife.com
Certified staff	Application of the described coating system should be carried out by certified personnel.



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